December 2015

Make the most of the cloud with Microsoft System Center and Azure

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1.1 The Dilemma: too many customers

Can too much business be a bad thing? Only when your Private Cloud cannot handle the load. A cloud computing solution is only as effective as your IT department can make it. Here is an example:

An online specialty food store is having a huge Social Media promotion and suddenly thousands of new customers are online trying to buy a food basket. However, the online store cannot manage the high volumes, and it takes hours to process the orders instead of minutes. Customers do not wait that long. They click away to another site that can process their order right away. Moreover, the food retailer loses all its campaign profits.

1.2 Is the cloud working hard enough for you?

These days IT departments are debating the potential of moving to the cloud. As an IT professional, I can tell you that the cloud can offer businesses many benefits. And what about businesses that already have an on-premise System Center environment? Will the cloud replace their investment or can it work as an extension? It is not too late to take advantage of the Public Cloud.

If you want to take advantage of the Public Cloud, Microsoft Azure offers a variety of solutions that you can use together with your on-premise environment.

Many businesses do not want to make a full transition to the public cloud due to the limits of its information storage policies. However, in this case a Hybrid Cloud solution offers Private and Public Cloud benefits and cloud capabilities.
1.3 Should you invest in Microsoft System Center?

Microsoft System Center is a suite of solutions for end-to-end management of physical servers and high-density virtual server infrastructure. It helps businesses manage their IT environments across traditional data centers, Private and Public clouds, client computers and devices.

Most IT departments use Microsoft System Center every day as part of their IT environment foundation. The suite ranges from IT service management to bare-metal provisioning of new virtual hosts and includes the following components:

- **Service Manager** – This ITSM management tool lets you publish a service catalog to your business. It is a rich data warehouse where you can store information about your mobile devices, network devices and servers.
- **Orchestrator** – The automation engine automates everything from creating a new user to providing a new server. “Drag and drop” run books let you automate everything you want. It works well along with Service Management Automation (SMA) and Azure Automation.
- **Virtual Machine Manager** – Manages your virtualized datacenter. You can manage storage and networking on your VMware and Hyper-V virtualization hosts. Use the console to deploy virtual machines and service templates to a private cloud you create for your users.
- **Operations Manager** – Use this tool to monitor servers, applications and network devices. It offers proactive monitoring and is very useful in a heavy Microsoft influenced environment.
- **Configuration Manager** – Manage servers, PCs and mobile devices from a single console. It is capable of many things including patch management, operating system deployment and compliance rules and to manage Endpoint Protection.
- **Data Protection Manager** – Brings Disaster and Recovery into the equation. It will protect on-premise data as well as data stored in Azure for the utmost protection of your data.

With the System Center suite, you can do everything from publish a service request; create a new user, to automatically back up a server in Azure. It offers many products in a package, as you use all of the components when you buy the license. This means if you bought the suite to use Configuration Manager, you automatically have the right to run Virtual Machine Manager and Operations Manager, etc. Once the initial product is running you can replace another product with a System Center product instead and cut those additional license expenses.

An example of this is when businesses have a long-used antivirus solution bringing in license costs and then replace it with Endpoint Protection. Keep in mind that Endpoint Protection is a part of the suite, so you can replace your other antivirus solution with this one. Just tick a few boxes to distribute it to managed clients through the Configuration Manager console. Then Endpoint Protection will automatically replace the old antivirus solution on the client and the licenses will not need to be renewed.

The best way to utilize System Center is when it works with all of these products together. You can automate the deployment of a new server when the products are connected and send details to each other about what has happened and also how to respond to an order.
When Operations Manager is linked to Service Manager, it generates alerts that can be forwarded to Service Manager where it creates incident requests. This will let your team work with two different systems from one console. Many incident alerts are self-explanatory, such as when a disk is full and needs to be cleaned. **Click here** to read about connecting Operations Manager to Service Manager.

### 1.4 Get to know the cloud

IT teams are discussing the possibilities of the cloud, especially data security and applications readiness.

A common security question is whether to move data to Microsoft’s datacenters in another country. This is not a problem. Almost every feature of Azure can be placed in several different regions around the world.

People are also concerned about application readiness and if they are capable of running in Azure. In many cases, an application may not benefit from the PaaS (Platform as a Service) platform, but it run on the IaaS (Infrastructure as a Service) platform instead.

Your on-premise environment has a limited amount of hardware to work with, but would it not be better to have unlimited resources on-hand? Azure lets you put new or existing servers in the cloud instead of running them in-house. If you are getting close to your limits, get ease of mind when you extend your environment to the Public Cloud instead of investing your budget into more hardware.

One of the biggest advantages of the cloud is that you can pay-as-you-go. Azure is letting developers deploy the machines they need and get the load they need to test out an application properly. IT
administrators can still monitor the servers even though they are deployed in Azure instead of on-premise.

1.5 How to connect your on-premise environment to the cloud?

You can connect Azure and the IaaS solutions two ways, either with the site-to-site VPN or with the express route. The VPN option gives you a tunnel on-premise to the cloud and connects your on-premise networks with networks you create in Azure. This way you will have direct access to your cloud servers and storage accounts. Read more about this connection process in my blog and read here more about the VPN solutions.

An example of how it may look when you use the site-to-site VPN

Or choose the express route and you will have a dedicated connection into the Azure datacenters. This solution offers the fastest connection with the lowest latency. The express route is great for backup jobs with heavy data migration or disaster recovery solutions like Azure Site recovery, for example. Click here to find out more about ExpressRoute.

Once you connect your on-premise environment, you can start deploying servers in Azure. There is no difference in working with these cloud servers other than a different IP subnet. Once connected, your on-premise System Center is ready to manage those cloud servers, as well as patching via SCCM, monitoring using SCOM and including those servers and components in your Live Maps Unity business services.
1.6 Monitoring Azure servers using Operations Manager

After you deploy multiple servers in Azure to run your specific business critical system, get peace of mind knowing these servers are monitored just as well as your on-premise servers. The only difference is they are deployed in Azure. They are managed and behave the same way as your on-premise servers. When you are also monitoring your VMs based in Azure along with a connection between Operations Manager and Service Manager, you will get Service Manager alerts on outages, just as if they were deployed on-premise.

1.7 System Center Add-on: Operations Management Suite

You can enhance the abilities of your System Center to optimize it even more. One of these is Operations Management Suite. It connects directly into Operations Manager, to offer another step of assessment of the environment. OMS is built around several solutions, including:

- **AD Assessment** – Checks the AD and compares it to Microsoft best practice to notify about configuration errors and potential problems with the current setup. It categorizes and points out security issues along with problem solving guides to make sure it does not happen again.
- **Alert Management** – Helps to evaluate alerts generated by Operations Manager and delivers insights, such as how many alerts have been raised by a specific object in a given time frame and finds root causes to avoid the same problem happening again.
- **Automation** – Integrates the Azure Backup solution directly into OMS, so you can automate tasks across your environment both on-premise and in the cloud. This lets you automate tasks across other Public Clouds as well as Azure workloads.
- **Azure Site Recovery** – Protect your site servers and data by backing it up and restoring it in Azure. Protect your virtual machines and if something goes wrong, start them up in Azure instead of on-premise.
- **Back up** – View status of your backup jobs protecting VMs and how much data you are using.
- **Capacity Planning** – Calculate your IT usage and get a report about how long your hardware will last with the current workload.
- **Change tracking** – See who made changes in your environment.
- **Malware Assessment** – Check the protection status of your servers and know which servers need attention and update definition files, for example.
- **Security and Audit** – The solution allows for forensic analysis, security breaches and enables audit scenarios. Learn when a certain user has done something to your environment.
- **SQL Assessment** – Evaluate the risk and health of your SQL server installations and make sure they are properly deployed. Recommendations are based on Microsoft’s personnel involved in thousands of customer engagements.
- **System Update Assessment** - Identify which system updates are missing across your servers, regardless if they are running inside your datacenter or a Public Cloud of your choice.
- **Wire Data** – Analyze your network traffic and find out which servers are sending the most data.
1.8 Operations Management Suite use cases

You can use Operations Management Suite (OMS) as an extension to System Center. An example of how it can help is about a customer who recently experienced recurring application crashes at their on-premise servers and each crash was logged as an event. My solution was to ship the logs from the servers into OMS. Then I created a custom field that pointed out the application name. This method let me pick up the total number of application crashes as well as pinpoint the number of application crashes per server. This process only took me 10 minutes to set up. Now they can use this method to provide developers with the information they need to make sure the problem has gone away during the troubleshooting.

Another practical example of using OMS is the ability to look for certain event IDs based on certain criteria in your server logs. All of your certificates used in your environment have an expiry date. What if you can get information about expiring certificates far before they actually expire? OMS does this easily with a simple search query.
1.9 Savision’s Live Maps Unity

Operations Manager offers rich server monitoring as a component and the applications as a group of components. However, Savision provide the ideal solution with Live Maps Unity, its flagship solution. It sets up service modelling and displays the status of those to the business in a creative way. Live Maps Unity makes it easier for organizations to group components that make up the business critical applications into business services.

Out of the box, Live Maps Unity offers something extra that Operations Manager does not: an easy way to see the level of availability of the complete business service. You will know exactly where to focus when something happens in the environment. A separate view inside Operations Manager displays only the alerts that are connected to the business services.

![Screenshot of health explorer for an alert about the exact fault in my service. Unlike the “Active Alerts” view, this only displays the errors about business services objects.](image)

When creating all of the services a business relies on, you can import these services into Service Manager as Service Maps. This lets your team see the alert they are working on and if it is affecting the availability of any business critical services. They can be more productive since they will not be losing time to search for causes of these interruptions, which will decrease the losses connected to service interruptions.

[Click here](#) to read more about this integration.

System Center offers huge opportunities with its connectors, which are displayed as monitored objects in Operations Manager. Whether or not you measure SLA levels, all objects in Operations Manager can
be used to build business services. And as you build more services, your environment overview will reveal a completely new level of visibility and your business can keep growing smoothly.

If this is not a concern for you now, would it not be nice to know what level of availability you deliver? Then you know much better where you need to increase extra effort to boost the SLA levels and show what is best for the business with its services.

1.10 Savision – Unified services

Savision most recent release of Live Maps Unity, version 7.5, provides significant enhancements to the current offering, by adding Advanced Service Level Agreement Monitoring and a brand new Web Portal. The web console we know today will live on for at least this release to avoid compatibility issues, but the completely new Web Console is now available. You will see familiar dashboards as well as the Business Service Dashboard and the Service Map. In addition, it gathers SLA levels information much faster than in the previous web console. There is also a brand new all HTML5 health explorer you may be familiar with from SCOM, that will open inside the web console and provide the information on a server or another object. You can also use this new web console to execute tasks against the objects, such as restarting services and start maintenance mode from within the console. This means you will be able to work with SCOM from any browser you prefer.
1.11 What is next for System Center 2016?

In future releases, System Center will align with Windows Server 2016 and Microsoft’s way of moving to the new version will point towards in-place upgrades. When it is launched, you can use even more functionality including:

- **Service Manager**
  - Azure Stack IT Marketplace
  - Usability enhancements

- **Orchestrator**
  - Install on-premise or in any cloud
  - No inbound ports needed
  - Highly available architecture
  - Linux support
  - Graphical authoring

- **Virtual Machine Manager**
  - Easier networking possibilities
  - Easier cluster creation
  - ACL management on port level
  - Nano Server management
  - Azure IaaS management

- **Operations Manager**
  - Completely new MPs for Office 365 and Windows Server 2016
  - Extended monitoring for Office 365, SQL and Exchange
  - LAMP stack monitoring
  - Updated MP catalog
  - Install trial software via the OM console

- **Configuration Manager** (will be launched as Configuration Manager alone, and not as a part of System Center 2016)
  - Full support for Windows 10 with OS deployment, app policy management, MDM enrollment along with Azure AD.
  - Manage Windows 10 Intune devices from your on-premise installation.

- **Data Protection Manager**
  - Azure IaaS, PaaS backup
  - Managed from Azure
  - Support for Azure Express Route

- Nano Server you will receive quarterly updates with valuable technical improvements for every product of the suite. It is always evolving and technicians or consultants can offer feedback to product teams at user voice, a feedback portal. Here are three feedback links you can use:
  - Configuration Manager
  - Virtual Machine Manager
  - Operations Manager
1.12 Conclusion

My goal of this whitepaper is to clarify how useful the cloud is for your IT team. It can extend your on-premise investments with all of its power and all its solutions. The cloud is a great addition to your on-premise investments and will offer many new capabilities, as well as protect the investments you have already made on-premise. Think about a new demanding business critical application that you do not have the power to run. Now you can put it in Azure, but it will still act as if it were deployed on-premise, just as you are used to. Pay-as-you-go is one of the finest advantages of the cloud, which means that you can fire up 20 servers for a week and pay for your usage. When you are done testing, you can just turn off the servers and you will not need to pay for these servers.

With all of these new possibilities, my final conclusion is that System Center and Azure are a perfect match. If you are thinking about moving completely or even partially to the cloud, feel confident that it will be a robust and seamless solution once you are connected; you literally have unlimited resources. These resources along with the fact that you can monitor and manage these servers in almost the same way as on-premise servers makes it a win-win situation and protects and enhances the investments you have already made.

1.13 About Daniel Örneling

Daniel Örneling is a specialist consultant working for TDC. He is heavily focused at SCOM, OMS and those parts of Azure that comes along with it. Follow his blog if you want to learn more about his tips and fixes for System Center Operations Manager, Operations Management Suite and much more.

1.14 About Savision

Savision is the market leader of IT Operations Intelligence, Business Service and Cloud Management solutions for Microsoft System Center. The company’s monitoring and visualizing capabilities bridge the gap between IT and business by transforming IT data into predictive, actionable and relevant information among the entire cloud and datacenter infrastructure. Savision’s intuitive and customizable dashboards provide context for each business service.

Savision’s solutions scale from small to medium businesses, government bodies as well as Fortune 500 companies operating in different fields and have been adopted by over 750 organizations worldwide. Founded in 2006, Savision is headquartered in the Netherlands with offices in Dallas and Ottawa and is privately held.

Click here for more information about Savision and Live Maps Unity.